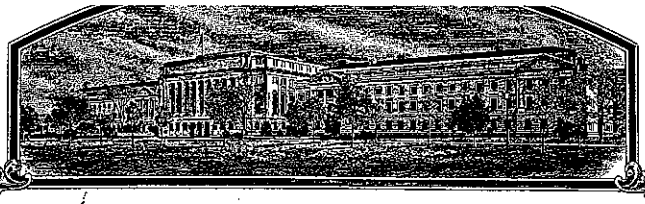
No. 200400096



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Idaho Research Foundation, Inc. (representing the interests of the Idaho Agricultural Experiment Station and the University of Idaho)

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE , OR CONDITIONING IT PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR USING IT IN PRODUCING A HYBRID OR VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE STATES SEED OF THIS VARIETY (I) SHALL BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED ALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS A 7 U.S.C. 2321 ET SEQ.)

WHEAT, COMMON

'Idaho 587'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of Washington, D.C. this twenty-third day of July, in the year two thousand and four.*

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

REPRODUCE LOCALLY. *Include form number and date on all reproductions*

Form Approved - OMB No. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER
Idaho Research Foundation, Inc., (representing the interests of the Idaho Agricultural Experiment Station and the University of Idaho

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME
IDA0587

3. VARIETY NAME
Idaho 587

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
PO Box 442337
University of Idaho
Moscow, ID 83844-2337
USA

5. TELEPHONE *(include area code)*
(208) 885-7173

6. FAX *(include area code)*
(208) 885-6654

FOR OFFICIAL USE ONLY

PVPO NUMBER
2004 00 096

FILING DATE
Feb. 4, 2004

7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.)*
Non-Profit

8. IF INCORPORATED, GIVE STATE OF INCORPORATION
Idaho

9. DATE OF INCORPORATION
1947

10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. *(First person listed will receive all papers)*
Richard C. Heimsch
Idaho Agricultural Experiment Station
PO Box 442337
Moscow, ID 83844-2337

FEES RECEIVED

FILING AND EXAMINATION FEES:
$ 3652.00
DATE 2/04/2004

CERTIFICATION FEE:
$ 432.00
DATE 6/03/2004

11. TELEPHONE *(Include area code)*
(208) 885-7173

12. FAX *(Include area code)*
(208) 885-6654

13. E-MAIL
agres@uidaho.edu

14. CROP KIND *(Common Name)*
Wheat

16. FAMILY NAME *(Botanical)*
Triticae

15. GENUS AND SPECIES NAME OF CROP
Triticum aestivum

17. IS THE VARIETY A FIRST GENERATION HYBRID?
☐ YES ☒ NO

18. DOES THE VARIETY CONTAIN ANY TRANSGENES? ***(OPTIONAL)***
☐ YES ☒ NO
IF SO, PLEASE GIVE THE ASSIGNED USDA-APHIS REFERENCE NUMBER FOR THE APPROVED PETITION TO DEREGULATE THE GENETICALLY MODIFIED PLANT FOR COMMERICALIZATION. _____

19. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED
(Follow instructions on reverse)

a. ☒ Exhibit A. Origin and Breeding History of the Variety
b. ☒ Exhibit B. Statement of Distinctness
c. ☒ Exhibit C. Objective Description of Variety
d. ☒ Exhibit D. Additional Description of the Variety *(Optional)*
e. ☒ Exhibit E. Statement of the Basis of the Owner's Ownership
f. ☒ Voucher Sample *(2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository)*
g. ☒ Filing and Examination Fee ($3,652), made payable to "Treasurer of the United States" *(Mail to the Plant Variety Protection Office)*

20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act)*
☒ YES *(If "yes", answer items 21 and 22 below)* ☐ NO *(If "no", go to item 23)*

21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES?
☒ YES ☐ NO
IF YES, WHICH CLASSES? ☒ FOUNDATION ☒ REGISTERED ☒ CERTIFIED

22. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☒ YES ☐ NO
IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS.
☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED
(If additional explanation is necessary, please use the space indicated on the reverse.)

23. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES?
☐ YES ☒ NO
IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. *(Please use space indicated on reverse.)*

24. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT *(PLANT BREEDER'S RIGHT OR PATENT)*?
☒ YES ☐ NO
IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. *(Please use space indicated on reverse.)*

25. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Owner(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER		SIGNATURE OF OWNER	
Alison Nowakowski			
NAME *(Please print or type)*		NAME *(Please print or type)*	
Alison Nowakowski			
CAPACITY OR TITLE	DATE	CAPACITY OR TITLE	DATE
Asst. Director, IRF, INC.			

(See reverse for instructions and information collection burden statement)

2004 00 096

INSTRUCTIONS

GENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be **received** in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to **reproduce** the variety, or for tuber reproduced varieties verification that a viable *(in the sense that it will reproduce an entire plant)* tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for $3,652 ($432 filing fee and $3,220 examination fee), payable to "Treasurer of the United States" *(See Section 97.6 of the Regulations and Rules of Practice.)* Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfiled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of $432 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

Plant Variety Protection Office
Telephone: (301) 504-5518
FAX: (301) 504-5291
Homepage: http://www.ams.usda.gov/science/pvpo/pvp.htm

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority and provide evidence that name has been cleared by the appropriate recognized authority before the Certificate of Protection is issued. For example, for agricultural and vegetable crops, contact: Seed Branch, AMS, USDA, 10301 Baltimore Avenue, Suite 401 NAL Building, Beltsville, MD 20705. Telephone: (301) 504-5682 http://www.ams.usda.gov/lsg/seed.htm.

ITEM

19a. Give:
(1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
(2) the details of subsequent stages of selection and multiplication;
(3) evidence of uniformity and stability; and
(4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified

19b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:

(1) identify these varieties and state all differences objectively;
(2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
(3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.

19c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.

19d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, *etc.*

19e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.

20. If "Yes" is specified *(seed of this variety be sold by variety name only, as a class of certified seed)*, the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. *(See Regulations and Rules of Practice, Section 97.103).*

23. *See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.*

24. *See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.*

22. CONTINUED FROM FRONT *(Please provide a statement as to the limitation and sequence of generations that may be certified.)*

23. CONTINUED FROM FRONT *(Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)*

24. CONTINUED FROM FRONT *(Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)*

US Patent 5,369,022. Filed September 17, 1993. Issued November 29, 1994. Assignee: BASF Agrochemical Products, B.V. (Formerly American Cyanamid)

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. The fees for filing a change of address; owner's representative; ownership or assignment; or any modification of owner's name is specified in Section 97.175 of the regulations. *(See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)*

PVP Application No. 200400096 – Revised 29 April, 2004
Plant Variety Protection Application Exhibit A: Origin and Breeding History of the Variety - Idaho 587

Idaho 587 was derived from the third backcross of Stephens to the imidazolinone-resistant line 'FS4' (synonym Cv. 9804), with the backross having the pedigree Stephens*4/FS4. The imidazolinone resistance in FS4 was derived through mutagenesis of the imidazolinone-susceptible cultivar 'Fidel', followed by selection of the mutagenized population with imidazolinone herbicides (Newhouse 1992). The herbicide tolerance carried in 'FS4' is conditioned by an allele of the *Als1* locus for acetolactate synthase with the allele designation *Als1fid04*. The BC_3F_2 seed of the cross Stephens*4/ FS4 was developed under contract by the American Cyanamid Corporation (subsequently acquired by BASF) at Texas A & M University by Mark Lazar and transferred to the University of Idaho under a material transfer agreement for utilization in selection and breeding. In 1996, the BC_3F_2 population designated 9697WAG460 was planted at Aberdeen, Idaho, and individual plants similar in appearance to Stephens were selected in fall 1997. BC_3F_3 seed of individual plant selections were planted at Aberdeen in fall 1997, with a random selection of heads collected in fall 1998 and planted as headrows at Aberdeen in fall 1998. Twenty BC_3F_3 seed of individual plant selections were planted in the greenhouse in winter 1999 and treated with imazamox (2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-5-(methoxymethyl)-3-pyridinecarboxylic acid, BASF Corp) to identify BC_3F_2 families homozygous for *Als1fid04*. Headrows derived from BC_3F_2 families homozygous for *Als1fid04* were selected in spring 1999 for uniformity and general agronomic appearance. Among these rows, a row designated W99-12-6 was harvested in 1999 and placed into yield testing and herbicide tolerance trials in southern Idaho in fall 1999. W99-12-6 was yield tested Aberdeen in 1999-2000, then placed in multi-location yield trials in 2000-2001. In 2001 and 2002, W99-12-6 was evaluated under the breeding line number IDO587 in cooperative testing with Oregon State University, University of Idaho Extension Testing, and the University of Idaho Weed Science Program. In fall 2000, 400 heads were selected from W99-12-6 and planted in the field at Aberdeen that same year. In spring 2001, the headrows were selected with imazamox herbicide for uniformity of tolerance. Headrows were uniformly tolerant to imazamox. Any headrows not similar in appearance to Stephens were discarded. Remaining $BC_3F_{3:6}$ headrows were harvested and planted at Aberdeen in fall 2001 to form breeder seed of Idaho 587. Idaho 587 has been stable and uniform for herbicide tolerance and appearance for four years, without variants.

Plant Variety Protection Application Exhibit B: Statement of Distinctness
Idaho 587

Idaho 587 is most similar to the cultivar 'Stephens'. It is a backcross derivative of Stephens that differs from the recurrent parent in only minor phenotypic variation. Idaho 587 is distinct from Stephens in being homozygous for the *Als1fid04* allele conditioning tolerance to the herbicide imazamox (2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-5-(methoxymethyl)-3-pyridinecarboxylic acid, BASF Corp). Stephens is homozygous for an alternate allele that is normally considered a wild-type allele conditioning susceptibility to the imazamox herbicide (See Tables 8 and 9 in Exhibit D).

REPRODUCE LOCALLY. Include form number and date on all reproductions.

Form Approved - OMB No. 0581-005

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

EXHIBIT C
(Wheat)

OBJECTIVE DESCRIPTION OF VARIETY
WHEAT (*Triticum* spp.)

NAME OF APPLICANT(S)

Idaho Agricultural Experiment Station

ADDRESS *(Street and No. or RD No., City, State, and Zip Code)*

PO Box 442337
Moscow ID 83844-2337

FOR OFFICIAL USE ONLY

PVPO NUMBER

2004 00 096

VARIETY NAME

TEMPORARY OR EXPERIMENTAL DESIGNATION

PLEASE READ ALL INSTRUCTIONS CAREFULLY: Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in the first box (e.g. [0][9][9] or [0][9]) when number is either 99 or less or 9 or less respectively. Data for quantitative plant characters should be based on a minimum of 100 plants. Comparative data should be determined from varieties entered in the same trial. Royal Horticultural Society or any recognized color standard may be used to determine plant colors; designate system used:
Please answer all questions for your variety; lack of response may delay progress of your application.

1. KIND:

[1] 1=Common 2=Durum 3=Club 4=Other (SPECIFY) : _____

2. VERNALIZATION:

[2] 1=Spring 2=Winter 3=Other (SPECIFY) : _____

3. COLEOPTILE ANTHOCYANIN:

[1] 1=Absent 2=Present

4. JUVENILE PLANT GROWTH:

[1] 1=Prostrate 2=Semi-erect 3=Erect

5. PLANT COLOR (boot stage):

[2] 1 = Yellow-Green 2 = Green 3 = Blue-Green

6. FLAG LEAF (boot stage):

[1] 1 = Erect 2 = Recurved [2] 1 = Not Twisted 2 = Twisted

7. EAR EMERGENCE:

[0][2] Number of Days Earlier Than Stephens *

[0][3] Number of Days Later Than Brundage *

5

8. ANTHER COLOR:

[1] 1 = Yellow 2 = Purple

9. PLANT HEIGHT (from soil to top of head, excluding awns):

[0][4] cm Taller Than Brundage 96 *

[1][0] cm Shorter Than Hubbard *

* Relative to a PVPO-Approved Commercial Variety Grown in the Same Trial

10. STEM:

A. ANTHOCYANIN

[1] 1= Absent 2=Present

B. WAXY BLOOM

[1] 1=Absent 2=Present

C. HAIRINESS (last internode of rachis)

[1] 1=Absent 2=Present

D. INTERNODE (SPECIFY NUMBER)

[1] 1= Hollow 2=Semi-solid 3=Solid

E. PEDUNCLE

[1] 1=Absent 2=Present

[13] cm Length

11. HEAD (at Maturity):

A. DENSITY

[2] 1=Lax 2=Middense 3= Dense

B. SHAPE

[2] 1 = Tapering 2= Strap 3 = Clavate 4 = Other (SPECIFY): _____

C. CURVATURE

[2] 1 = Erect 2 = Inclined 3 = Recurved

D. AWNEDNESS

[4] 1 = Awnless 2 = Apically Awnletted 3 = Awnletted 4 = Awned

12. GLUMES (at Maturity):

A. COLOR

[1] 1 = White 2 = Tan 3 = Other (SPECIFY) : _____

B. SHOULDER

[1] 1 = Wanting 2 = Oblique 3 = Rounded 4 = Square 5 = Elevated 6 = Apiculate

C. BEAK

[2] 1 = Obtuse 2 = Acute 3 =Acuminate

D. LENGTH

[2] 1 = Short (ca. 7mm) 2 = Medium (ca. 8mm) 3 = Long (ca. 9mm)

12. GLUMES (at Maturity) *Continued*:

2004 00 096

E. WIDTH

[2] 1 = Narrow (ca. 3mm) 2 = Medium (ca. 3.5mm)
3 = Wide (ca. 4mm)

13. SEED:

A. SHAPE

[1] 1 = Ovate 2 = Oval 3 = Elliptical

B. CHEEK

[1] 1=Rounded 2=Angular

C. BRUSH

[2] 1=Short 2=Medium 3=Long

[1] 1 = Not Collared 2 = Collared

D. CREASE

[2] 1 = Width 60% or less of Kernel
2 = Width 80% or less of Kernel
3 = Width Nearly as Wide as Kernel

[1] 1 = Depth 20% or less of Kernel
2 = Depth 35% or less of Kernel
3 = Depth 50% or less of Kernel

E. Color

[1] 1=White 2= Amber 3= Red
4= OTHER (Specify)

G. PHENOL REACTION *(see instructions)*:

[3] 1 = Ivory 2 = Fawn
3 = Light Brown 4 = Dark Brown
5 = Black

F. TEXTURE

[2] 1=Hard 2=Soft

14. DISEASE: (0=Not Tested; 1=Susceptible; 2=Resistant; 3=Intermediate; 4=Tolerant)

PLEASE INDICATE THE SPECIFIC RACE OR STRAIN TESTED

[0] Stem Rust *(Puccinia graminis* f. sp. *tritici)*

[2] Leaf Rust *(Puccinia recondita* f. sp. *tritici)*

[2] Stripe Rust *(Puccinia striiformis)*

[0] Loose Smut *(Ustilago tritici)*

[0] Tan Spot *(Pyrenophora tritici-repentis)*

[0] Flag Smut *(Urocystis agropyri)*

[0] Halo Spot *(Selenophoma donacis)*

[2] Common Bunt *(Tilletia tritici* or *T. laevis)*

[1] *Septoria nodorum* (Glume Blotch)

[1] Dwarf Bunt *(Tilletia controversa)*

[0] *Septoria avenae* (Speckled Leaf Disease)

[0] Karnal Bunt *(Tilletia indica)*

[1] *Septoria tritici* (Speckled Leaf Blotch)

[0] Powdery Mildew *(Erysiphe graminis* f. sp. *tritici)*

[0] Scab (*Fusarium* spp.)

[1] "Snow Molds"

14. Disease *(Continued)* (0=Not Tested; 1=Susceptible; 2=Resistant; 3=Intermediate; 4=Tolerant)

PLEASE INDICATE THE SPECIFIC RACE OR STRAIN TESTED

[3]	"Black Point" (Kernel Smudge)	[3]	Common Root Rot *(Fusarium, Cochliobolus* and *Bipolaris* spp.*)*
[0]	Barley Yellow Dwarf Virus (BYDV)	[0]	Rhizoctonia Root Rot *(Rhizoctonia solani)*
[0]	Soilborne Mosaic Virus (SBMV)	[4]	Black Chaff *(Xanthomonas campestris* pv. *translucens)*
[0]	Wheat Yellow (Spindle Streak) Mosaic Virus	[0]	Bacterial Leaf Blight *(Pseudomonas syringae* pv. *syringae)*
[0]	Wheat Streak Mosaic Virus (WSMV)	[ ]	Other (SPECIFY)
[ ]	Other (SPECIFY)	[ ]	Other (SPECIFY)
[ ]	Other (SPECIFY)	[ ]	Other (SPECIFY)
[ ]	Other (SPECIFY)	[ ]	Other (SPECIFY)

15. INSECT: (0=Not Tested; 1=Susceptible; 2=Resistant; 3=Intermediate; 4=Tolerant)

PLEASE SPECIFY BIOTYPE (where needed)

[0]	Hessian Fly *(Mayetiola destructor)*	[ ]	Other (SPECIFY)
[0]	Stem Sawfly *(Cephus* spp.)	[ ]	Other (SPECIFY)
[0]	Cereal Leaf Beetle *(Oulema melanopa)*	[ ]	Other (SPECIFY)
[0]	Russian Aphid *(Diuraphis noxia*	[ ]	Other (SPECIFY)
[0]	Greenbug *(Schizaphis graminum)*	[ ]	Other (SPECIFY)
[0]	Aphids	[ ]	Other (SPECIFY)

16. ADDITIONAL INFORMATION ON ANY ITEM ABOVE, OR GENERAL COMMENTS

Plant Variety Protection Application Exhibit D: Additional description
Idaho 587

Table 1. Group 5 (Imidazlinone Trial), Aberdeen, untreated controls, 2001-2.
Table 2. Fidel, IDO587, and IDO588 treated with Imazamox herbicide at four rates: ANOVA , 2002.
Table 3. Injury and agronomic performance for genotypes treated with differential rates of imazamox, Aberdeen, 2002.
Table 4a. Mean Effect of Rate on Fidel, IDO587, and IDO588 (averaged over genotype), Aberdeen, 2002.
Table 4b. Effect of Imazamox Rate on Stephens, Aberdeen, 2002.
Table 5. Analysis of Variance, Mixed Effects Model, Aberdeen, 2000-01.
Table 6. Interaction means (genotype *rate) for injury 22 DAT and heading date, Aberdeen, ID, 2000-1.
Table 7. Grain yield of Stephens-derived breeding lines with imazamox resistance, tested with varying rates of imazamox herbicide, Aberdeen, ID, 2000-1.
Table 8. Analysis of variance, mixed effects model, for IDO587, IDO588, and Fidel Fs-4, Pendelton, OR, 2001-2
Table 9. Grain yield of IDO587 and IDO588 breeding lines with imazamox resistance, tested with varying rates of spring applied imazamox herbicide, Pendelton, OR, 2001-2
Table 10. Western Regional Soft White Winter Wheats & Name Varieties, 2 YR SUMMARY
Table 11. Milling and baking data from eight southern Idaho locations of extension nurseries, 2002.
Table 12. Summary of north Idaho extension testing, Nez Perce, Lewiston, Genesee, and Bonner's Ferry, ID, 2001-2.
Table 13. Irrigated winter wheat trials, Aberdeen and Hazelton, 2001 and 2002.
Table 14. Summary of yield trial data from breeding program trials in Idaho in 2001 and 2002 and extension trials in Idaho, 2002.

Table 1. Group 5 (Imidazlinone Trial), Aberdeen, untreated controls, 2001-2.

	Head date	Yield	Tare	Test Weight
	(Julian)	(bu/a)		(lb/bu)
Fidel	163	121	3.6%	59.8
Stephens	165	121	5.2%	58.7
IDO587	165	132	3.1%	59.2
IDO588	164	123	1.9%	59.1
LSD	2	13	2%	
Stderr				0.2

Table 2. Fidel, IDO587, and IDO588 ANOVA and Interaction Means, 2002.

	EFFECT	DF	TYPE III SS	MS	F
Height	Genotype	2	174.0	87.0	2.68
(June 5)	Rate	3	1583.5	527.8	29.67***
	Rate*Genotype	6	207.6	34.6	1.94
Heading	Genotype	2	17.0	8.5	4.05
(Julian)	Rate	3	21.2	7.1	3.94*
	Rate*Genotype	6	4.0	0.7	0.37
Injury	Genotype	2	0.2	0.1	0.25
(May 24)	Rate	3	26.4	8.8	19.49***
	Rate*Genotype	6	0.7	0.1	0.25
Injury	Genotype	2	0.0	0.0	0.09
(May 31)	Rate	3	57.0	19.0	22.43***
	Rate*Genotype	6	1.1	0.2	0.22
Injury	Genotype	2	0.8	0.4	3.35
(June 10)	Rate	3	142.9	47.6	63.31***
	Rate*Genotype	6	4.5	0.8	1.01
Injury	Genotype	2	0.4	0.2	0.77
(June 17)	Rate	3	177.7	59.2	167.27***
	Rate*Genotype	6	3.5	0.6	1.63
Yield	Genotype	2	750.0	375.0	1.92
	Rate	3	7145.0	2381.7	27.79***
	Rate*Genotype	6	176.0	29.3	0.34
Test Wt	Genotype	2	1.94	0.97	1.74
	Rate	3	52.40	17.47	59.89***
	Rate*Genotype	6	5.00	0.83	2.85*

Table 3. Injury and agronomic performance for genotypes treated with differential rates of imazamox, Aberdeen, 2002.

Genotype	Rate	Height June 5	Heading date	Injury May 24	Injury May 31	Injury June 10	Injury June 17	Yield	Test weight
		(cm)	(Julian)	(0-9)	(0-9)	(0-9)	(0-9)	(bu/a)	(lb/bu)
Fidel	0	69.3	163	0.0	0.0	0.0	0.0	121.0	59.8
Fidel	0.04	67.0	164	0.5	0.0	0.0	0.0	123.3	59.6
Fidel	0.078	61.3	163	1.3	1.0	1.8	1.5	102.0	58.5
Fidel	0.156	47.3	162	2.0	2.5	4.3	4.5	98.9	56.2
IDO587	0	60.0	165	0.0	0.0	0.0	0.0	131.5	59.2
IDO587	0.04	60.5	165	0.5	0.0	0.0	0.0	135.9	58.8
IDO587	0.078	56.3	165	1.5	1.3	1.0	2.0	114.7	57.9
IDO587	0.156	50.0	163	1.8	2.5	3.8	4.8	101.6	56.7
IDO588	0	61.3	164	0.0	0.0	0.0	0.0	122.8	59.1
IDO588	0.04	60.8	164	0.3	0.0	0.3	0.3	130.5	59.1
IDO588	0.078	59.5	163	1.0	0.8	0.5	0.8	109.7	59.0
IDO588	0.156	50.0	163	2.0	3.0	4.8	5.0	98.5	57.2
StdErr		2.1	1	0.3	0.5	0.4	0.3	4.6	0.3

Table 4a. Mean Effect of Rate on Fidel, IDO587, and IDO588 (averaged over genotype), Aberdeen, 2002.

Rate	Height June 5	Heading date	Injury May 24	Injury May 31	Injury June 10	Injury June 17	Yield	Test weight
	(cm)	(Julian)	(0-9)	(0-9)	(0-9)	(0-9)	(bu/a)	(lb/bu)
0	63.5	164	0.0	0.0	0.0	0.0	125	59.4
0.04	62.8	164	0.4	0.0	0.1	0.1	130	59.2
0.078	59.0	163	1.3	1.0	1.1	1.4	109	58.4
0.156	49.1	163	1.9	2.7	4.3	4.8	100	56.7
LSD	3.5	1	0.6	0.8	0.7	0.5	8	
StdErr								0.2

Table 4b. Effect of Imazamox Rate on Stephens, Aberdeen, 2002.

Rate	Height June 5	Heading date	Injury May 24	Injury May 31	Injury June 10	Injury June 17	Yield	Test weight
	(cm)	(Julian)	(0-9)	(0-9)	(0-9)	(0-9)	(bu/a)	(lb/bu)
0	56.8	165	0	0	0.0	0.0	121	58.7
0.04	23.3	.	4	6.5	7.0	8.0	.	.
0.078	24.5	.	5	6.5	7.3	8.5	.	.
0.156	21.5	.	6	7.5	8.0	8.8	.	.
LSD	6.1	.	1	1.2	1.5	0.8	.	.

Table 5. Analysis of Variance, Mixed Effects Model, Aberdeen, 2000-01.

Effect	Injury 8 DAT		Injury 16 DAT		Injury 22 DAT		Injury 31 DAT		Height 31 DAT		Heading date	
	F		F		F		F		F		F	
Genotype	1.03	ns	1.07	ns	0.72	ns	0.56	ns	0.99	ns	1.75	ns
Rate	21.04	***	172.65	***	187.58	***	126.04	***	34.67	***	54.92	***
Genotype * Rate	0.85	ns	0.53	ns	1.08	ns	1.14	ns	0.81	ns	0.87	ns

Split plot design. Main plots = genotypes (Fidel and six Imi-Stephens selections)
Subplots = rates (0, 5, 10, 20 oz product/a with 2.5% UAN and 0.25% NIS)
4 replications

Table 6. Interaction means (genotype *rate) for injury 22 DAT and heading date, Aberdeen, ID, 2000-1.

	Injury 22 DAT (0 to 9)					Heading date (Julian)				
	Rate (oz product/a)					Rate (oz product/a)				
Genotype	0	5	10	20	*Mean*	0	5	10	20	*Mean*
Fidel	0.5	0.5	2.0	4.0	1.8	162	163	163	165	163
IS 12-2	0.0	0.8	1.3	4.3	1.6	163	164	165	169	165
IS 12-4	0.0	0.8	2.0	4.8	1.9	165	166	168	171	168
IDO587	0.0	0.5	1.8	4.5	1.7	164	165	167	169	166
IS 12-11	0.0	0.5	1.5	3.5	1.4	165	165	167	168	166
IS 12-13	0.0	0.3	1.8	4.5	1.7	164	164	166	169	166
IDO588	0.0	0.8	2.3	3.3	1.6	165	164	168	170	167
Mean	0.1	0.6	1.8	4.1		164	164	166	169	

Injury was evaluated on a scale of 0 to 9, where 0 = no visible injury and 9=dead.

Table 7. Grain yield of Stephens-derived breeding lines with imazamox resistance, tested with varying rates of imazamox herbicide, Aberdeen, ID, 2000-1.

Rate lbs ai/ac	Fidel	IS1202	IS1204	IDO587	IS1211	IS1213	IDO588
			---------- bu/ac ----------				
0	93.5	111.3	116.4	126.3	113.0	116.1	117.9
0.04	96.2	107.9	109.0	117.1	106.6	116.3	109.8
0.078	86.3	110.9	115.6	115.1	115.2	107.6	104.5
0.156	86.8	91.5	101.1	99.3	103.8	117.2	107.0

Yield of 0.156 lbs/ac treatment as % of untreated check.

93%	82%	87%	79%	92%	101%	91%

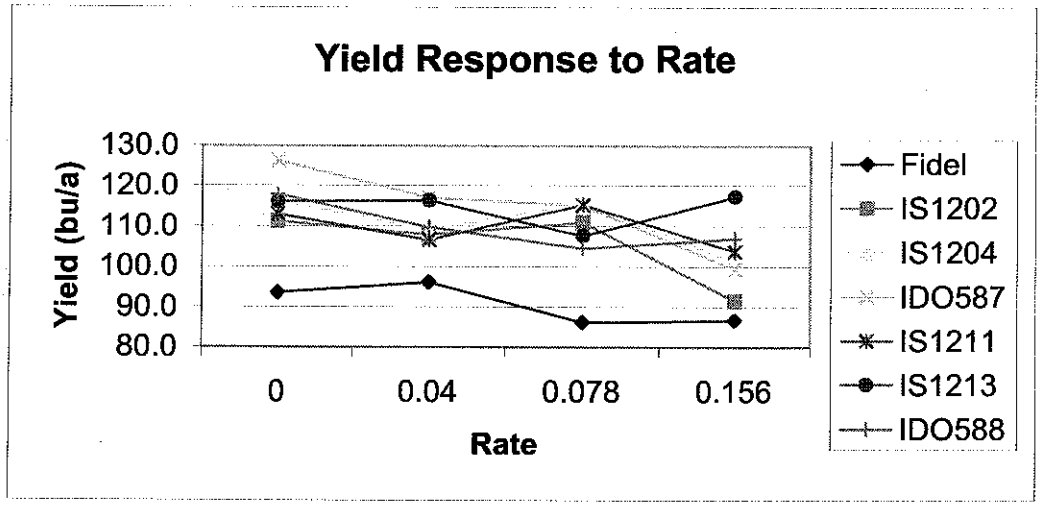


Table 8. Analysis of variance, mixed effects model, for IDO587, IDO588, and Fidel Fs-4, Pendelton, OR, 2001-2

	Degrees of freedom	F-value	Prob > F
Rate	3	5.88	0.0025
Genotype	2	6.41	0.0045
Rate*Genotype	6	1.31	0.2815

Data provided by Jim Peterson, Oregon State University

Table 9. Grain yield of IDO587 and IDO588 breeding lines with imazamox resistance, tested with varying rates of spring applied imazamox herbicide, Pendelton, OR, 2001-2

Rate 4 oz ai/ac	Fidel	IDO587	IDO588	Stephens
		---------- bu/ac ----------		
0	82.7	78.9	83.7	77.6
4	89.8	82.7	93.4	0.0
6	90.4	79.2	82.7	0.0
12	85.7	71.8	72.4	0.0

Yield of 12 oz/ac treatment as % of untreated check.

104%	91%	86%	0%

Table 10. Western Regional Soft White Winter Wheats & Name Varieties, 2 YR SUMMARY Aberdeen and Hazelton, ID

	Solvent retention capacity				Flour yield			
Genotype	Water	NaCarb	Sucrose	Lactic acid	Break	Total	Flour protein	Sugar snap cookie dia
	%							cm
Year								
2001	49.9	62.1	93.6	84.2	34.3	63.0	10.8	8.2
2002	48.9	65.9	97.1	87.9	39.9	67.1	9.7	8.4
Location								
Aberdeen	48.1	63.3	91.7	81.6	36.5	66.3	10.1	8.3
Hazelton	50.6	64.7	98.9	90.5	37.7	63.7	10.4	8.2
Genotype								
Brundage	49.0	63.4	91.8	85.8	38.0	65.7	9.9	8.4
Brundage96	47.1	62.6	93.7	87.5	36.8	63.2	10.6	8.3
Daws	50.2	64.6	102.3	98.4	39.1	63.0	9.8	8.1
Madsen	51.4	62.9	93.0	79.4	35.9	66.5	10.5	8.4
Stephens	51.6	66.1	97.1	94.0	33.8	63.8	10.6	8.1
Weatherford	51.6	64.5	96.8	85.6	34.3	66.0	10.5	8.2
WPB470	47.7	66.4	100.3	101.9	35.4	63.1	10.8	8.0
IDO587	48.5	64.3	92.7	80.0	34.1	65.5	10.0	8.5
IDO605	48.2	61.8	90.3	71.6	34.6	68.4	10.5	8.3

Table 11. Milling and baking data from eight southern Idaho locations of extension nurseries, 2002.

Cultivar	Break flour yield	Flour yield	Flour protein	Cookie diameter	Top grain
	%	%	%	cm	1 to 5
Idaho 587	35.9	65.9	10.3	8.5	2.7
Stephens	35.9	65.2	10.2	8.4	2.8
Brundage	38.1	64.8	9.9	8.4	2.4
Std error	0.6	0.6	0.2	0.9	0.3

Table 12. Summary of north Idaho extension testing, Nez Perce, Lewiston, Genesee, and Bonner's Ferry, ID, 2001-2.

Cultivar	Grain yield bu/ac	Test weight lbs/bu	Grain protein %	Lodging[1] %	Plant height in
Stephens	97	57.7	11.2	1	36
IDO587	96	57.8	11.3	1	36
IDO588	99	58.4	11.4	3	37
Albion	94	56.2	11.3	3	34
Brundage 96	99	58.1	11.3	0	35
Beamer	101	58.4	11.5	12	38
Finch	97	58.7	11.5	1	38
Hubbard	100	59.4	11.2	0	40
Lambert	100	58.3	11.3	5	39
Madsen	96	57.9	11.9	2	36
Mohler	109	58.3	10.9	6	38
Rod	98	57.6	10.7	3	35
Tubbs	102	56.4	11.7	0	37
WPB470	101	61.5	11.3	2	35
Std. Err.	2.1	0.3	0.2		0.5

1. Lodging data for Bonner's Ferry only.

Table 13. Irrigated winter wheat trials, Aberdeen and Hazelton, 2001 and 2002.

		Grain yield bu/ac	Test weight #/bu	Heading Jan 1+	Height in	Lodging 1=erect 9=Flat
Brundage	SWW	123.9	62.8	155.3	32.1	2.0
IDO605	SWW	118.8	60.0	163.1	35.6	2.2
IDO587	SWW	117.1	60.3	158.3	33.6	2.4
Stephens	SWW	114.2	59.7	160.7	35.7	3.5
Boundary	HRW	113.7	61.9	159.8	33.8	3.4
Garland	HRW	112.6	61.1	160.0	28.1	1.5
Moreland	HRW	111.1	61.3	155.1	32.0	2.2
WPB470	SWW	109.8	63.2	155.3	32.0	1.8
Brundage 96	SWW	101.3	59.4	161.8	32.5	3.2
Std. Error		12.3	0.5	2	3.8	

Table 14. Summary of yield trial data from breeding program trials in Idaho in 2001 and 2002 and extension trials in Idaho, 2002.

	Rain-fed sites #	Irrigated sites #	Grain yield bu/ac	Test weight lbs/bu	Plant height in	Lodging %	Heading date Jan 1+
IDO587	4	10	106.4	57.6	33.5	16	159
Stephens	4	10	107.1	57.8	34.1	21	160
			ns	ns	ns	ns	ns
IDO587	1	9	107.6	57.1	32.9	24	159
Brundage	1	9	113.5	60.0	31.7	18	156
			ns	**	*	ns	**
IDO587	4	10	106.4	57.6	33.5	16	159
Brundage 96	4	10	101.5	57.8	32.7	16	161
			ns	ns	*	ns	ns
IDO587	4	6	103.7	57.0	33.6	18	169
Hubbard	4	6	105.7	59.6	38.3	19	162
			ns	**	**	ns	**
IDO587	4	7	94.7	56.4	32.0	5	160
Madsen	4	7	93.6	57.4	33.0	0	164
			ns	ns	ns	ns	**
IDO587	4	10	106.4	57.6	33.5	16	159
WPB470	4	10	106.0	61.9	32.2	12	156
			ns	**	**	ns	**

ns= the difference between paired cultivars is not signficant at the 95% level of confidence
*=difference between paired cultivars significant at the 95% level of confidence.
**=difference beween paired cultivars significant at the 99% level of confidence.

IDAHO AGRICULTURAL EXPERIMENT STATION
Moscow, Idaho

Announces the release of
IDAHO 587
SOFT WHITE WINTER WHEAT

Idaho 587, soft white winter wheat (*Triticum aestivum,* L.), was developed by the Idaho Agricultural Experiment Station for use by grain producers in the Pacific Northwest. Idaho 587 is a backcross derivative of the soft white winter wheat cultivar 'Stephens' with genetic tolerance developed by the BASF Corporation to the imidazolinone class of herbicides for use in controlling pernicious weeds of winter wheat and generically given the name 'Clearfield'.

Idaho 587 was derived from the third backcross of Stephens to the imidazolinone-resistant line 'FS4' (synonym Cv. 9804), with the backross having the pedigree Stephens*4/FS4. The imidazolinone resistance in FS4 was derived through mutagenesis of the imidazolinone-susceptible cultivar 'Fidel', followed by selection of the mutagenized population with imidazolinone herbicides (Newhouse 1992). The herbicide tolerance carried in 'FS4' is conditioned by an allele of the *Als1* locus for acetolactate synthase with the allele designation *Als1fid04*. The BC_3F_2 seed of the cross Stephens*4/ FS4 was developed under contract by the American Cyanamid Corporation (subsequently acquired by BASF) at Texas A & M University by Mark Lazar and transferred to the University of Idaho under a material transfer agreement for utilization in selection and breeding. In 1996, the BC_3F_2 population designated 9697WAG460 was planted at Aberdeen, Idaho, and individual plants similar in appearance to Stephens were selected in fall 1997. BC_3F_3 seed of individual plant selections were planted at Aberdeen in fall 1997, with a random selection of heads collected in fall 1998 and planted as headrows at Aberdeen in fall 1998. Twenty BC_3F_3 seed of individual plant selections were planted in the greenhouse in winter 1999 and treated with imazamox (2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-5-(methoxymethyl)-3-pyridinecarboxylic acid, BASF Corp) to identify BC_3F_2 families homozygous for *Als1fid04*. Headrows derived from BC_3F_2 families homozygous

for *Als1fid04* were selected in spring 1999 for uniformity and general agronomic appearance. Among these rows, a row designated W99-12-6 was harvested in 1999 and placed into yield testing and herbicide tolerance trials in southern Idaho in fall 1999. W99-12-6 was yield tested Aberdeen in 1999-2000, then placed in multi-location yield trials in 2000-2001. In 2001 and 2002, W99-12-6 was evaluated under the breeding line number IDO587 in cooperative testing with Oregon State University, University of Idaho Extension Testing, and the University of Idaho Weed Science Program. In fall 2000, 400 heads were selected from W99-12-6 and planted in the field at Aberdeen that same year. In spring 2001, the headrows were selected with imazamox herbicide for uniformity of tolerance. Headrows were uniformly tolerant to imazamox. Any headrows not similar in appearance to Stephens were discarded. Remaining $BC_3F_{3:6}$ headrows were harvested and planted at Aberdeen in fall 2001 to form breeder seed of Idaho 587. Idaho 587 has been stable and uniform for herbicide tolerance and appearance for four years without variants.

Idaho 587 is most similar to the cultivar Stephens with an unpigmented coleoptile, dark green foliage, and a prostrate to semi-erect fall growth habit. Idaho 587 is a semi-dwarf, winter wheat that is approximately 85 cm tall at maturity, similar to Stephens and Madsen (both 86 cm), but taller than 'Brundage 96' (83 cm) and shorter than 'Hubbard' (97 cm). Like Stephens, Idaho 587 is a medium maturity cultivar heading 159 days after January 1st, approximately a day earlier than Stephens and four days earlier than 'Madsen'. Idaho 587 has broad, recurved flag leaves, is awned, with yellow anthers at anthesis and white colored chaff at maturity. Idaho 587 has large, plump, oval, soft white seed with a wide crease, short brush, mid-sized embryo, and an average seed size is 46 mg (compared with 42 mg for Stephens). The seed of Idaho 587 is similar to Stephens for polyphenol oxidase activity. In replicated evaluations in Moscow, Idaho, Lewiston, Idaho, Pullman, Washington, and Mount Vernon, Washington, Idaho 587 had both seedling and adult plant resistance to the dominant races of stripe rust [caused by *Puccinia striiformis* (Westend.), races PST-14, 22, 23, 26,

35, 40, 41, 45, 53, 61, 74, 78, 85, 91, 92, 93, 97, 98, 99], without observable necrosis or pustule formation. Idaho 587's stripe rust resistance is similar to Stephens and likely derives from that cultivar. Other disease resistances and susceptibilities for Idaho 587 are expected to be similar to Stephens.

The primary difference between Idaho 587 and Stephens is Idaho 587's tolerance to imazamox herbicide. In two years of evaluation at Aberdeen, Idaho and one year of evaluation at Pendleton, Oregon and Moscow, Lewiston, and Nez Perce, Idaho, using one to four times the recommended rates of imazamox herbicide, Idaho 587 a did not have significantly different response to imazamox than FS4, the source of Idaho 587's herbicide tolerance. In two years of trials at Aberdeen, 45 g ai ha^{-1} imazamox was sufficient to kill 100% of the Stephens check but did not significantly reduce grain yield of Idaho 587. At the same rate of herbicide, in a spring application at 6 site-years across Idaho and Oregon, Idaho 587 had an average grain yield of 6.1 Mg ha^{-1} compared with 6.3 Mg ha^{-1} for FS4 (not significantly different).

In yield trials, without Imazamox applications (14 site-years), in southeastern Idaho in 2001 and 2002, and in western and northern Idaho in 2002, Idaho 587, Stephens, Brundage 96, and 'Westbred 470' had average grain yields of 7.2 Mg ha^{-1}, 7.2 Mg ha^{-1}, 6.8 Mg ha^{-1}, and 7.1 Mg ha^{-1}, respectively. In the same trials Idaho 587, Stephens, Brundage 96, and Westbred 470 had average test weights of 741 kg m^{-3}, 744 kg m^{-3}, 743 kg m^{-3}, and 796 kg m^{-3}, respectively. These four cultivars were not found to differ significantly in their lodging resistance. In a subset of these Idaho trials (11 site-years), Idaho 587 had similar grain yields to Madsen, 6.4 Mg ha^{-1} and 6.3 Mg ha^{-1}, respectively. Across nine locations, in Oregon extension testing, in 2002, Idaho 587, Stephens, and Madsen had average grain yields of 5.7 Mg ha^{-1}, 5.5 Mg ha^{-1}, and 5.8 Mg ha^{-1}, respectively. In two sites across two years of milling evaluations in Idaho, Idaho 587 had an average flour yield of 655 g kg^{-1} of grain compared with 638 g kg^{-1} for Stephens and 665 g kg^{-1} for Madsen. Sugar snap cookie evaluations of the same flour for Idaho 587 produced an average cookie

92 diameter of 8.5 cm compared with 8.1 cm for Stephens and 8.4 cm for Madsen.
93 Solvent retention capacity analysis of flour from Idaho 587 and Stephens
94 produced a sodium carbonate solvent retention of 643 g kg^{-1} for Idaho 587, 661 g
95 kg^{-1} for Stephens, and 629 g kg^{-1} for Madsen. Lactic acid retention in the same
96 analyses of 800 g kg^{-1} for Idaho 587, 940 g kg^{-1} for Stephens, 794 g kg^{-1} for
97 Madsen.

98 Foundation seed of Idaho 587 will be maintained by the Idaho Agricultural
99 Experiment Station and Plant Variety Protection sought for the cultivar. Idaho
100 587 carries a patented proprietary gene owned by BASF Corporation. Therefore,
101 it will be distributed only under a material transfer agreement in cooperation with
102 the BASF Corporation. Interested parties may contact the Idaho Research
103 Foundation, Moscow Idaho.

_____ _____

Director, Idaho Agricultural Experiment Station Date
Moscow, Idaho

References

104 Newhouse, Keith E., Wendy A. Smith, Mark A. Starrett, Thomas J. Schaefer, and Bijay K. Singh
105 (1992) Tolerance to Imidazolinone Herbicides in Wheat. Plant Physiology 100:882-886.

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U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

Application is required in order to determine if a plant variety protection certificate is to be issued *(7 U.S.C. 2421)*. The information is held confidential until the certificate is issued *(7 U.S.C. 2426)*.

1. NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME
Idaho Research Foundation, Inc. (representing the interests of the Idaho Agricultural Experiment Station and the University of Idaho.)	IDA0587	Idaho 587

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP, and Country)*	5. TELEPHONE *(Include area code)*	6. FAX *(Include area code)*
PO Box 443447 University of Idaho Moscow, ID 83844-2337 USA	(208) 885-7173	(208) 885-6654

7. PVPO NUMBER 2004 00 096

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. **If no, please explain.** ☐ YES ☒ NO

Idaho 587 contains the patented gene als1. U.S. Patent 5,369,022. Filed September 17, 1993. Issued November 29, 1994. Assignee: BASF Agrochemical Products, B.V. (Formerly American Cyanamid)

9. Is the applicant (individual or company) a U.S. national or a U.S. based company? **If no, give name of country.** ☒ YES ☐ NO

10. Is the applicant the original owner? ☒ YES ☐ NO **If no, please answer one of the following:**

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?
☐ YES ☐ NO **If no, give name of country**

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?
☐ YES ☐ NO **If no, give name of country**

11. Additional explanation on ownership *(Trace ownership from original breeder to current owner. Use the reverse for extra space if needed)*:

Original cross developed under contract with BASF (formerly American Cyanamid). Segregating population transferred to the University of Idaho under material transfer agreement. Selection and testing of selected materials conducted by the University of Idaho (Edward Souza) with permission of BASF.

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.